

NOTEWORTHY COLLECTION

ARIZONA

ARTEMISIA PYGMAEA A. Gray (ASTERACEAE).—Mohave Co., flatland, E of road to Antelope Valley, 5000 ft, T40N R4W S36, 10 Sept 1977, *S. Clark 3700* (BLM Arizona Strip District Herbarium, St. George, UT); ca 10 mi SW of Fredonia and 4 mi S of Hwy 389 along the Mt Trumbull Rd, small shrubs local on white Moenkopi badland exposure, growing with *Artemisia tridentata* and *Eriogonum corymbosum*, T40N R4 W S36 NENW, 22 Sept 1999, *John L. Anderson 99-30* (ASU); Mt. Trumbull Loop, 350731 4077310N, Clifton 41711 (Clifton private herbarium), Apache Co., Red Valley, ca 3 mi NW of jct. between Navajo Rtes 12 and 134, fine red clay soils of Chinle formation, occasional with *Artemisia bigelovii*, *Yucca angustissima*, *Sitanion hystrix*, *Juniperus monosperma*, 12S 674218 3988143N, 2206 m (7280 ft), 12 June 2003, *Roth 1600* (ASC, SJC).

Previous knowledge. *Artemisia pygmaea* extends from northern Nevada, Utah and Colorado south to northern New Mexico and northern Arizona. In Arizona it has only been known from one locality south of Fredonia where it has been collected several times since 1945 (*Darrow 3006* [ARIZ]).

Significance. The above collections document the second and third localities of *Artemisia pygmaea* in Arizona. *Anderson 99-30* is only ca 16 km (10 mi) from the previous known Arizona locality, but *Roth 1600* is ca 320 km (200 mi) east, near the New Mexico state line. Its importance is as an indicator of rare plant habitat since "...it occurs in peculiar edaphic habitats...where it is often a component of communities that support rare plant species" (Welsh et al. 2003). At the Fredonia locality *Artemisia pygmaea* occurs with *Pediocactus sileri* Gray, a Moenkopi Formation endemic.

BURSERA MICROPHYLLA A. Gray (BURSERACEAE).—La Paz Co., Harquahala Mts., foothills on the S side, ca 4 mi NE of Salome Hwy. below Socorro Peak, small shrubs (< 1 m tall) growing on steep south-facing hillsides of Paleozoic gray limestone with *Parkinsonia microphylla*, *Carnegia gigantea*, *Fouquieria splendens*, *Ferocactus cylindraceus*, *Opuntia bigelovii*, *Encelia farinosa*, *Hyptis emoryi*, T5N R11W S30 center, 2100 ft (640 m) 19 Mar 2001, *John Anderson 2001-22* and *Leanna Anderson* (ASU, ARIZ).

Previous knowledge. *Bursera microphylla* (elephant tree, torote blanco, copal) ranges throughout the Sonoran Desert from western Sonora and southern Baja California north to southern Arizona and disjunct in California in the Anza-Borrego Desert (Kearney and Peebles 1960; Felger 2000). In Arizona *Bursera microphylla* is known from approximately fifteen desert mountain ranges primarily just north of the Mexican border.

Significance. The Harquahala Mountains location represents the northernmost known occurrence of *Bursera microphylla*. This site is 120 km (75 mi) north of the nearest occurrence to the south in the Mohawk Mountains (*Salywon 547, 551* [ASU]), east of Yuma, Arizona, and 80 km (50 mi) northwest of the White Tanks Mountains (*Keil 4012, 5943, 6191* [ASU]), west of Phoenix, Arizona. The Harquahala Mountains *Bursera microphylla* plants are dwarf shrubs due to the harshness of the habitat at this northernmost

location, but in the main part of their range in Mexico they are trees 2–6 m tall.

FUIRENA SIMPLEX Vahl (CYPERACEAE).—La Paz Co., Grapevine Springs on S side of the Santa Maria River, first spring E of Mine Spring, locally common at spring, with *Prosopis velutina*, *Salix gooddingii*, *Baccharis sergiloides*, *Vitis arizonica*, surrounding hills are Sonoran Desert, T11N R11 S21 SENE, 1400 ft (425 m), 18 Sept 1997, *John L. Anderson 97-27* (ASU).

Previous knowledge. *Fuirena simplex* is widespread from the midwest (Kansas, Missouri, and Illinois) south through Mexico and the West Indies to northern South America (Kral 2003). Imdorf (1994) documented the first record of *Fuirena simplex* in Arizona. There it occurs at a spring in oak-juniper woodland at 4800 ft (1450 m) in the Sierra Ancha Mountains of east central Arizona.

Significance. The La Paz Co. record documents a second locality in Arizona and is 240 km (150 mi) west of the previous Arizona record. The Grapevine Springs site is also over 1000 m lower in elevation than the Sierra Ancha Mountains location. Its adjacent vegetative community, Sonoran Desertscrub, is very different from the Madrean Evergreen Woodland at the Sierra Anchas locality. The Grapevine Springs locale is also dissimilar from the usual habitats of *Fuirena simplex* described as "low open woods, savannas and prairies" (Kral 2003).

PHOLISTOMA MEMBRANACEUM (Benth.) Constance (HYDROPHYLLACEAE).—Mohave Co., in large wash about 0.1 mi n of junction of Bonelii Landing Rd 74 and Temple Bar Rd, 550 m, 24 March 2001, *Katherine Birgy s.n.*, *Seth Thompson* and *Elizabeth Powell* (ARIZ, UNLV); Wilson Ridge, W side, canyon N of LMNRA Rd 64 (Boundary Mine Rd), Mohave Desert, sandy wash bottom along base of narrow canyon, with *Keckiella antirrhinoides* ssp. *microphylla*, *Viguiera deltoidea*, *Salazaria mexicana*, *Brickellia californica*, *Bebbia juncea*, *Penstemon bicolor*, T30N R22W S26E, 3200 ft (970 m), 2 Apr 2003, *John L. Anderson 2003-17* (ASU, ARIZ); Petroglyph Wash, 721059 3993362N, Clifton 43456 (Clifton private herbarium).

Previous knowledge. *Pholistoma membranaceum* is widespread through the southern two thirds of California from the coast, foothills, and desert in a variety of habitats below 4750 m. It also extends into Baja California.

Significance. The above collections, all from the Wilson Ridge area, represent first records for Arizona of *Pholistoma membranaceum*. Wilson Ridge, part of the Black Mountains, is directly east of the Colorado River and Nevada.

PULICARIA PALUDOSA Link (ASTERACEAE).—Yuma Co., Mity Lake State Wildlife Area, 0.5 mi E of AZ/CA stateline and 6.2 mi W of Hwy 95 on Imperial Dam Rd, roadside in damp soil with *Phragmites*, *Typha*, *Pluchea*, *Polypogon*, T6S R21W S31NW, 11S 0737901 3639858, 176 ft (53 m), 15 July 2010, *John L. Anderson 2010-14* (ASU). La Paz Co., Cibola National Wildlife Refuge, Island Unit (Unit 3), 0.5 mi W of Colorado River on Island Road, edge of flooded field with *Cynodon dactylon*, *Typha*, *Salix gooddingii*, *Prosopis*, 11S 0715264 3687034, 200 ft (60 m), 30 Sept 2010, *John L. Anderson 2010-26* (ASU); Parker, east bank of Colorado River just

downstream from Hwy 62 Bridge between Parker, AZ, and Earp, CA, densely vegetated mudflat with *Echinochloa lemmonii*, *Cynodon dactylon*, *Arundo donax*, *Typha*, *Phuechea purpurascens*, *Baccharis salicifolia*, 11S 0749065 3782807, 350 ft (105 m), 30 Sept 2010, John L. Anderson 2010-27 (ASU).

Previous knowledge. *Pulicaria paludosa* is a native of the Mediterranean region of Portugal and Spain, reflected in its common name, Spanish false fleabane. It is introduced in California (Preston 2006) where it was first collected in 1946 (Orange Co., Rancho Santa Ana, Santa Ana River Canyon, moist sandy bank, Munz 11554 [RSA], Preston 2006) and first documented in 1963 Raven (1963). In California, *Pulicaria paludosa* is primarily known from coastal southern California with a Mediterranean climate similar to its native habitat; it also occurs in the Palm Springs area and all along the Colorado River adjacent to Arizona: Squaw Lake, Imperial Co., Bell 230 (UCR); Blythe, Riverside Co., Ballmer s.n. (UCR); Earp, San Bernardino Co., McGaugh s.n. (UCR); Whipple Mts, San Bernardino Co., DeGroot et al 3348, 4367, 4382 (RSA). The collection McLaughlin 4318 has a label location of "Sand island in Colorado River, near outlet of Taylor Lake" but with different counties on different duplicates at different herbaria: Imperial/Yuma Cos. (RSA), Imperial Co. (UCR), and Yuma Co. (ARIZ). S. McLaughlin (Univ. of Arizona, personal communication) stated that the collection McLaughlin 4318 was from the California side of the Colorado River.

Significance. The above collections extend the range of *Pulicaria paludosa* east across the Colorado River from California into Arizona and represent the first records for Arizona. Though, as noted above, Anderson 2010-26 was actually collected west of the Colorado River but still in Arizona where the CA/AZ state line follows an old meander which is west of the present course of the Colorado River.

PURSHIA GLANDULOSA Curran (ROSACEAE).—Mohave Co., near Whitney Pass, gravelly, sandy loam, locally common, with *Yucca brevifolia*, *Y. baccata*, *Thamnosma*, *Encelia*, *Hymenoclea*, 3925 ft (1190 m), 22 Apr 1980, Ralph Gierisch 4714 (ARIZ, ASC, ASU); Black Mountains, ca 7 air mi N of Union Pass, near radio facility and ca 2 mi N of Air Ranch, small shrubs growing on light-colored volcanic tuff (and extending onto adjacent rhyolitic hillsides), associated species include *Juniperus californica*, *Coleogyne ramosissima*, *Ericameria linearifolia*, *Salazaria mexicana*, *Salvia dorii*, *Cylindropuntia acanthocarpa*, T 22N R20W S2 SWSW, 4100 ft (1242 m), 26 Apr 1994, John L. Anderson 94-5 (ASU).

Previous knowledge. *Purshia glandulosa* is not included in Arizona botanical references (Kearney and Peebles 1960; Shreve and Wiggins 1964; McDougal 1973; Lehr 1978; Benson and Darrow 1981) as part of the Arizona flora. Several floras of adjacent states do include Arizona in its range (Munz 1973; Hickman 1993; Cronquist et al. 1997; Welsh et al. 2003).

Significance. The above collections document the occurrence of *Purshia glandulosa* in Arizona. Mature fruits are needed in collections to make a positive identification of *Purshia glandulosa* because it resembles *P. stansburiana* vegetatively. Early season collections from other localities farther east in Mohave Co., Arizona, Quail Canyon (21 Apr 2000 Higgins (NY Accession Number 848039) and Cedar Pockets (2 May 2000 Higgins (NY Accession Number 848038)), were

identified as *Purshia glandulosa*. The author visited these localities on Aug 30 and Sept 1, 2010, respectively, and found the *Purshia* plants present to be *P. stansburiana*, having the multiple plumose-tailed achenes of *P. stansburiana*, not the single non-plumose achene of *P. glandulosa*. In Arizona *Purshia glandulosa* is a peripheral species of limited distribution, present only in the westernmost mountains in Mohave Co, Arizona, the Black Mountains (Anderson 94-5) and the Virgin Mountains (Gierisch 4714), adjacent to Nevada; nonetheless, it is a welcome addition to the Arizona flora. As Lester Rowntree (1939) said, "Although there is a great deal of *Purshia glandulosa* growing with Desert Artemisia on the mountains slopes bordering the desert, it seems never to be tiresome."

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